A Study of the Perceptions of Watershed Users on the Impact of Watershed in the Markapuram Mandal of Andhra Pradesh

SYNOPSIS

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Watershed is an activity composition of no of components to arrest the run off rain waters and help in recharge of ground water table. Hilly areas and sandy soil areas in rainy season rain water runoff with high speed and along with soil erosion , due to this reason water is not available to crops and fertile land also loss due to erosion due to this so many areas suffering with savior drought conditions. Government of India initiated a programme for the drought prone areas to develop water resources and safe guard the soil erosion. The programme is named as watershed development programme.

The Watershed approach has conventionally aimed at treating degraded lands with the help of low cost and locally accessed technologies such as in-situ soil and moisture conservation measures, a forestation etc. and through a participatory approach that seeks to secure close involvement of the user-communities.

The broad objective was the promotion of the overall economic development and improvement of the socio-economic conditions of the resource poor sections of people inhabiting the programme areas. Many projects designed within this approach were, at different points of time, taken up by the Government of India. The Drought Prone Areas Programme (DPAP) and the Desert Development Programme (DDP) were brought into the watershed mode in 1987. The Integrated Wasteland Development Programme (IWDP) launched in 1989 under the aegis of

the National Wasteland Development Board also aimed at the development of wastelands on watershed basis.

The Technical Aspect:-

Scientists have developed appropriate technologies to find solutions to most problems relating to watershed treatment. They range from simple check-dams to large percolation/irrigation tanks, from vegetative barriers to contour bunds. However, experience has shown that in a large percentage of cases, the farmers/villagers do not show much enthusiasm for adopting these on account of several factors such as high initial investments, high operational/maintenance costs, or high technical input requirement. Further, in many cases, while the technology is quite suitable and simple, it is still unacceptable to the villagers on account of the socio-economic realities at the ground level which hinder its adoption. On the other hand, the farmers and the village community have evolved their own technologies based on local knowledge and materials which are cost-effective, simple and easy to operate and maintain. While these may be practical innovations, they may not be the best technological options for the whole of the watershed taken as an integrated system.

The Human Factor :-

Experience has shown that watershed development projects under different programmes often failed to achieve their physical and financial targets on account of inappropriate administrative arrangements or inadequate management skills of the project staff. Even in cases where progress has been satisfactory, development has not been sustainable in terms of operation and maintenance of assets created and common

property resources because of inadequate participation by the village communities and user groups. While the programme guidelines do emphasize the developmental programmes, most successful experiments, largely of Voluntary Agencies (VA) and a few from the governmental agencies, indicate that success is achieved through Government's/VA's participation in the peoples programmes rather than the other way around.

The planning and implementation of watershed development projects involve the project staff of the implementation agency, whether governmental or non-governmental, and the village community that is directly or indirectly dependent on the natural resources in the watershed area. Sufficient care needs to be bestowed on their orientation, skills, upgradation and motivation. The project staff need training in technical content as well as the skill to recognize and improve upon indigenous technical knowledge. They also need to be trained in the tools and techniques of project management, Participatory Rural Appraisal (PRA) methods, community organisation and other administrative and accounting procedures.

The villagers need training and exposure to modern scientific and technical methods, entrepreneurial skills to identify and exploit opportunities, community organisation and team building to work in user groups. These guidelines, provide for institutional arrangement and funding for community organisation and training components.

Operational Flexibility :-

Previous guidelines on these programmes concentrated on laying down the objectives, components, cost-norms and steps required to be taken

to enable the state governments to formulate watershed development projects but lacked adequate instructions on how to implement the projects once the projects are sanctioned. This has led to considerable divergence in implementation procedures in different states and even within the states in different projects. In any cases, desirable objectives laid down in the guidelines, such as people's participation, have been completely neglected. And in some cases, progress has been poor since sufficient attention was not given to operational details which led to problems in implementation. The present Guidelines while outlining the broad contours of various implementation stages of the watershed development projects, provide sufficient operational flexibility at the state, district and project levels to enable them to respond to differing situations and aspirations of the village communities and user groups

i) To promote the economic development of the village community which is directly or indirectly dependent on the watershed through:-

- Optimum utilization of the watershed's natural resources like land, water, vegetation, etc. that will mitigate the adverse effects of drought and prevent further ecological degradation.
- Employment generation and development of the human and other economic resources of the village in order to promote savings and other income-generation activities.

To encourage restoration of ecological balance in the village through:-

- Sustained community action for the operation and maintenance of assets created and further development of the potential of the natural resources in the watershed. Simple, easy and affordable technological solutions and

institutional arrangements that make use of and build upon, local technical knowledge and available materials.

India's agriculture is mostly dependent on snow-fed rivers of north and seasonal monsoons which account for 75 per cent of the water demand. Major river systems in the north are the perennial Himalayan Rivers, namely Ganga, Yamuna and Brahmaputra. In the south, Krishna, Godavari and Cauvery are the perennial rivers but mostly fed by seasonal monsoons. While the eastern parts of India suffer major flood damages, severe drought may simultaneously affect the western states. According to the Central Water Commission's report, the average area affected by floods is approximately 7.56 million ha affecting around 33 million people. Conversely, western India is plagued by droughts depleting the ground water and damaging perennial trees, plantations and orchards (Atreya Dey, 2009).

India is vastly diverse in topography, natural resources, climate and socio-political structures. It has 2.4 per cent of the land area of the world, 4 percent of its water resources and supports 16.6 per cent of the world's population, of which 72.2 per cent is rural (US Govt. C1A fact book, 2009). India's economy is based on agriculture and therefore demand for water is about 80 percent of the total water available. According to Planning Commission's Report, 2007 India is fast becoming a water scarce zone because of unwise and reckless usage, wastage and pollution of groundwater and surface water. Though the available water resources remain constant, almost 50 per cent of the river basins have lower water levels.

Rapid economic growth has fostered population explosion, urbanization, industrialization and climate changes had upset the balance between supply and demand of water.

The Andhra Pradesh is the most disaster prone area in terms of droughts, floods, cyclones and fire. It is the fifth largest state in India in terms of population and area. Spread over 2.75 Lakh Sq.Km. comprises 8.4 per cent of the country's total geographical area. It has a long coastal line stretching approximately 1030 Km. and an equally long history of cyclones. The coastal districts are normally affected by cyclones and floods, whereas the western and northern parts of state often experience severe drought conditions. The total cultivable area in our country is 142 million ha, out of which 89 m. ha is unirrigated. Forty five per cent of food grains are grown in the area. The irrigated area has reached a production plateau of 110 million tones. (Sudhirendra Sharma, 2008).

Watershed is a topographically delineated area that includes all land areas extending from the ridge down to the stream from which water is collected. Watershed management is the process of guiding and organizing and other resource uses to maximize the supply of usable water, minimize soil erosion and siltation.

The focus of watershed management is, in most cases, soil and water convervation and associated activities. Farmers with a degree of resource ownership take advantage of this programmes. The ownership of assets varies widely in watershed villages with some inhabitants being small and marginal farmers or even totally landless. The interests of the landless, who do not have a stake in land and water, are often overlooked.

Definitions

Guy Honore (2002) defines watershed as a topographically deliented area that is drained by a stream system. It is made up of its physical and hydrological natural resources as well as human resources. Management of watershed thus entails the rational utilization of land and water resources for optimum production but minimum hazard to natural and human resources. Therefore, watershed management is the process of guiding and organizing use of land and other resources to provide desired goods and services without adversely affecting soil, water and other resources.

"A watershed is understood to be a catchment area feeding an identifiable drainage system such as stream or water. It contains a no. of bio-physical resources, soil and water, along with vegetation in the form of trees, grasses and crops and provide sustenance for a no. of further enterprises such as livestock production" (Farrington, 1999).

Watershed is a hydrological unit comprising all land and water within the confined drainage area and its management is the integrated use, regulation and treatment of land, forest and water resources of a watershed (SCSA, 1982). It is a physical unit inhabited by people and its resources are used for people's productive activities. It is the rational utilization of land, water, forest and rangeland resources of watershed for optimum production with a minimum hazard to these resources. (Paudel, 1998)[9].

Review of the studies on watershed management revealed that majority of the studies focused more on technical aspects of Watershed Management, the role and responsibilities of community based organizations particularly water user committees, etc. Another area in

which the studies were found to be lacking is that they emphasized too much on impact assessment and role of participatory approach. Also most of the studies were done other states of India, a very few studies were there in Andhra Pradesh. There is dearth of studies in Andhra Pradesh in general and Markapur Mandal in particular. The present study focused only on the perceptions and the level of awareness among the community members regarding watershed management and its guidelines. Also made an attempt to examine the role of Water User Committees (WUCs) in Prakasam District and Markapur mandal in particular.

Objective of the study:

The main aim of the study is to examine the perceived impact of watershed programme on livelihoods of the respondents is mentioned crucial and important in managing a watershed program. The specific objectives are as follows:

1. To study the socio-demographic profile of the community members.
2. To examine the awareness levels of the respondents about the water user committees.
3. To study the participation level of community in watershed management process.
4. To assess the impact of watershed in their communities on their livelihoods.
5. To draw policy level implications for strengthening the watershed management and programmes.

The present study was taken up in Markapur mandal is one of the mandals in Prakasam District having Nallamala forest as their boundary. Also it has been declared as the one of the drought prone mandals in the District. The present study was taken up in this mandal because the number of watershed programmes was high when compared to other mandals. The area is benefited both southwest and north east monsoon. The total precipitation in the year is 704.9mm (2010) against an actual rainfall of 705.7. Markpaur Coordinates 15^0-44'-10" latitude and 79^0-16'-22" longitude. The pasture and grazing area is 683 ha (2.00%), net area sown 9930 ha (28.60%) cropped area 10,547 ha (30.30%). There are no canals or tanks for irrigating the fields. Entire area is rain fed and is irrigated by tube wells. Gross area irrigated by this source is 4051 ha. (During 2009-10)/ 3311 ha in Khariff and 740 ha is Rabi season. There are no dug wells or lift irrigation facilities. Paddy, Jowar, Bajra, Maize, Ragi, Horsegram, Redgram are the crops grown in the mandal. Rabi crops are Jowar, Maize & Pulse while during Kharif Paddy, Chillies, Redgram are grown cotton is grown in Kharif Sunflower in Rabi Tobacco is grown both in Kharif and Rabi in large areas. The Markapur mandal has 3 major community based organizations Vanasamrakshana samithies, water user groups and Rythumitra groups 45, against 216, 467, and 1504 respectively for the district. The total population of Markapur mandal is 96,912. The literary rate, among men and women in Markapur mandal was 74.56 and 47.36 respectively.

Universe & Sample Size

In the mandal, 17 villages were selected where the watershed catchment and water user committee existed. The researcher collected the names of stakeholders, of the watershed, and there are *432 members*. Hence,

the universe comprises 432 members. The names of the 432 members were serially numbered and every fourth name was taken as sample and there were 108 members. Hence, the size of the sample is 108 for the study.

Method and Tools of Data collection

The study relied on both primary and secondary data. The survey method was used for the collection of primary data by interviewing the local water user committee (CBO) members, village heads, youth, women and farmers. The researcher gathered the secondary data regarding the watershed – from officials concerned.

An interview schedule was developed in such a way that it translated the research objectives into specific questions and thus enabled the study to obtain necessary and relevant information which appropriately explains the phenomenon. The interview schedule was focusing on the -

1. Personal profile of stake holder
2. Awareness and participation levels of stake-holders and
3. Impact of watershed on personal life.

Data collection

After finalization of the tool for collection of data and the selection of the subjects to come under the study, the researcher administered the interview schedule to the sample population to collect data pertaining to the study. The researcher made an attempt to contact them in their respective villages, offices and farm fields. The average time taken to collect the required data from the respondents is 60 – 120 min.

Data Processing and Analysis

The interview schedule was pre-coded. Data collected by interview schedules were edited for any omission or errors. Then with the help of Statistical Package for Social Sciences (SPSS) the data were processed. The data were subjected to statistical analyses keeping in view the objectives of the study.

Chapterization

The present study contains 5 chapters. First chapter deals with the conceptual framework of the watershed programme and its guidelines for implementation in India. The second chapter reviews the earlier studies in this area. The research methodology forms the subject of the third chapter. The fourth chapter examines the socio-economic situation, respondents' knowledge and awareness on watershed implementation guidelines, the level of their participation, and also analyses their perceptions towards the watershed programme in their area. Conclusions and suggestions are presented in the fifth chapter.